

WHAT IS CLAIMED IS:

1. A method of processing packets for transmission over a satellite communications network, the method comprising:
  - receiving a packet associated with an application from a host;
  - classifying the packet into one of a plurality of transport services based upon the corresponding application; and
  - mapping the one transport service to one of a plurality of packet delivery services, wherein the one packet delivery service provides transmission of the packet over the satellite communications network.
2. The method according to Claim 1, wherein the classifying step comprises:
  - determining the application associated with the received packet based upon header information of the received packet, wherein the header information includes at least one of source address, destination address, source port, destination port, and type of service information.
3. The method according to Claim 1, wherein the application exhibits at least one of a constant traffic pattern, bursty traffic pattern, and a combination thereof, the transport services being predefined according to the traffic pattern of the application.
4. The method according to Claim 3, wherein the transport services include a constant rate service for supporting the constant rate traffic, a constant rate with burst service for supporting the combination of the constant traffic and the bursty traffic, a priority burst service for supporting the bursty traffic, and a low volume service for supporting the bursty traffic that is low in volume and requires low latency through the satellite communications network.
5. The method according to Claim 3, wherein the packet delivery services include rate access for establishing a constant rate communication channel, volume access for establishing a bandwidth-on-demand communication channel, and contention access for establishing a contention communication channel.
6. The method according to Claim 5, wherein the one transport service is the constant rate service, the method further comprising:
  - determining whether the received packet exceeds a predetermined committed information rate (CIR);
  - selectively dropping the packet based upon the determining step; and

utilizing the rate access packet delivery service to forward the packet.

7. The method according to Claim 5, wherein the one transport service is the constant rate with burst transport service, the method further comprising:

determining whether the received packet is below a predetermined committed information rate (CIR), as measured by a leaky bucket profile;

utilizing the volume access packet delivery service to forward the packet upon determining that the received packet is above the CIR; and

utilizing the rate access packet delivery service to forward the packet upon determining that the received packet is at or below the CIR.

8. The method according to Claim 5, wherein the one transport service is the priority burst transport service, the method further comprising:

determining whether an arrival rate exceeds a threshold;

utilizing the volume access packet delivery service to forward the packet if the determined arrival rate exceeds the threshold; and

utilizing the contention access packet delivery service to forward the packet if the determined arrival rate does not exceed the threshold.

9. The method according to Claim 5, wherein the one transport service is the low volume transport service, the method further comprising:

utilizing the contention access packet delivery service to forward the packet.

10. The method according to Claim 1, wherein the classifying step comprises: specifying a default transport service for the one transport service.

11. A terminal apparatus for transmitting packets over a satellite network, comprising:

a user interface configured to receive a packet associated with an application from a host;

classification logic coupled to the user interface and configured to classify the packet into one of a plurality of transport services based upon the corresponding application; and

mapping logic configured to map the one transport service to one of a plurality of packet delivery services, wherein the one packet delivery service provides transmission of the packet over the satellite network.

12. The apparatus according to Claim 11, wherein the classification logic determines the application associated with the received packet based upon header information of the received packet, wherein the header information includes at least one of source address, destination address, source port, destination port, and type of service information.

13. The apparatus according to Claim 11, wherein the application exhibits at least one of a constant traffic pattern, bursty traffic pattern, and a combination thereof, the transport services being predefined according to the traffic pattern of the application.

14. The apparatus according to Claim 13, wherein the transport services include a constant rate service for supporting the constant rate traffic, a constant rate with burst service for supporting the combination of the constant traffic and the bursty traffic, a priority burst service for supporting the bursty traffic, and a low volume service for supporting the bursty traffic that is low in volume and requires low latency through the satellite communications network.

15. The apparatus according to Claim 13, wherein the packet delivery services include rate access for establishing a constant rate communication channel, volume access for establishing a bandwidth-on-demand communication channel, and contention access for establishing a contention communication channel.

16. The apparatus according to Claim 15, wherein the one transport service is the constant rate service, the classification logic being configured to determine whether the received packet exceeds a predetermined committed information rate (CIR), and to selectively drop the packet based upon the determination, the apparatus utilizing the rate access packet delivery service to forward the packet.

17. The apparatus according to Claim 15, wherein the one transport service is the constant rate with burst transport service, the classification logic being configured to determine whether the received packet is below a predetermined committed information rate (CIR), the apparatus utilizing the volume access packet delivery service to forward the packet upon determining that the received packet is above the CIR and utilizing the rate access packet delivery service to forward the packet upon determining that the received packet is at or below the CIR.

18. The apparatus according to Claim 15, wherein the one transport service is the priority burst transport service, the apparatus utilizing the volume access packet delivery service to forward the packet.

19. The apparatus according to Claim 15, wherein the one transport service is the low volume transport service, the apparatus utilizing the contention access packet delivery service to forward the packet.

20. The apparatus according to Claim 11, wherein the classification logic specifies a default transport service for the one transport service.

21. A terminal apparatus for transmitting packets over a satellite network, comprising:

means for receiving a packet associated with an application from a host;

means for classifying the packet into one of a plurality of transport services based upon the corresponding application; and

means for mapping the one transport service to one of a plurality of packet delivery services, wherein the one packet delivery service provides transmission of the packet over the satellite communications network.

22. The apparatus according to Claim 21, wherein the classifying means comprises:

means for determining the application associated with the received packet based upon header information of the received packet, wherein the header information includes at least one of source address, destination address, source port, destination port, and type of service information.

23. The apparatus according to Claim 21, wherein the application exhibits at least one of a constant traffic pattern, bursty traffic pattern, and a combination thereof, the transport services being predefined according to the traffic pattern of the application.

24. The apparatus according to Claim 23, wherein the transport services include a constant rate service for supporting the constant rate traffic, a constant rate with burst service for supporting the combination of the constant traffic and the bursty traffic, a priority burst service for supporting the bursty traffic, and a low volume service for supporting the bursty traffic that is low in volume and requires low latency through the satellite communications network.

25. The apparatus according to Claim 23, wherein the packet delivery services include rate access for establishing a constant rate communication channel, volume access for establishing a bandwidth-on-demand communication channel, and contention access for establishing a contention communication channel.

26. The apparatus according to Claim 25, wherein the one transport service is the constant rate service, the apparatus further comprising:

means for determining whether the received packet exceeds a predetermined committed information rate (CIR);

means for selectively dropping the packet based upon the determination, wherein the apparatus utilizes the rate access packet delivery service to forward the packet.

27. The apparatus according to Claim 25, wherein the one transport service is the constant rate with burst transport service, the apparatus further comprising:

means for determining whether the received packet is below a predetermined committed information rate (CIR), wherein the apparatus utilizes the volume access packet delivery service to forward the packet upon determining that the received packet is above the CIR, and utilizes the rate access packet delivery service to forward the packet upon determining that the received packet is at or below the CIR.

28. The apparatus according to Claim 25, wherein the one transport service is the priority burst transport service, the apparatus utilizing the volume access packet delivery service to forward the packet.

29. The apparatus according to Claim 25, wherein the one transport service is the low volume transport service, the apparatus utilizing the contention access packet delivery service to forward the packet.

30. The apparatus according to Claim 21, wherein the classifying means specifies a default transport service for the one transport service.

31. A communication system for transmitting packets over a satellite, comprising:

a satellite terminal providing connectivity for a host, the satellite terminal including,

a user interface configured to receive a packet associated with an application from the host, and

classification logic coupled to the user interface and configured to classify the packet into one of a plurality of transport services based upon the corresponding application, and

mapping logic configured to map the one transport service to one of a plurality of packet delivery services, wherein the one packet delivery service provides transmission of the packet to the satellite; and

a hub configured to communicate with the satellite terminal over the satellite to provide the plurality of packet delivery services.

32. The system according to Claim 31, wherein the classification logic determines the application associated with the received packet based upon header information of the received packet, wherein the header information includes at least one of source address, destination address, source port, destination port, and type of service information.

33. The system according to Claim 31, wherein the application exhibits at least one of a constant traffic pattern, bursty traffic pattern, and a combination thereof, the transport services being predefined according to the traffic pattern of the application.

34. The system according to Claim 33, wherein the transport services include a constant rate service for supporting the constant rate traffic, a constant rate with burst service for supporting the combination of the constant traffic and the bursty traffic, a priority burst service for supporting the bursty traffic, and a low volume service for supporting the bursty traffic that is low in volume and requires low latency through the system.

35. The system according to Claim 33, wherein the packet delivery services include rate access for establishing a constant rate communication channel, volume access for establishing a bandwidth-on-demand communication channel, and contention access for establishing a contention communication channel.

36. The system according to Claim 35, wherein the one transport service is the constant rate service, the classification logic being configured to determine whether the received packet exceeds a predetermined committed information rate (CIR), and to selectively drop the packet based upon the determination, the satellite terminal utilizing the rate access packet delivery service to forward the packet.

37. The system according to Claim 35, wherein the one transport service is the constant rate with burst transport service, the classification logic being configured to determine whether the received packet is below a predetermined committed information rate (CIR), the satellite terminal utilizing the volume access packet delivery service to forward the packet upon determining that the received packet is above the CIR and utilizing the rate access packet delivery service to forward the packet upon determining that the received packet is at or below the CIR.

38. The system according to Claim 35, wherein the one transport service is the priority burst transport service, the satellite terminal utilizing the volume access packet delivery service to forward the packet.

39. The system according to Claim 35, wherein the one transport service is the low volume transport service, the satellite terminal utilizing the contention access packet delivery service to forward the packet.

40. The system according to Claim 31, wherein the classification logic specifies a default transport service for the one transport service.

41. A computer-readable medium carrying one or more sequences of one or more instructions for processing packets for transmission over a satellite communications network, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

receiving a packet associated with an application from a host;

classifying the packet into one of a plurality of transport services based upon the corresponding application; and

mapping the one transport service to one of a plurality of packet delivery services, wherein the one packet delivery service provides transmission of the packet over the satellite communications network.

42. The computer-readable medium according to Claim 41, wherein the classifying step comprises:

determining the application associated with the received packet based upon header information of the received packet, wherein the header information includes at least one of source address, destination address, source port, destination port, and type of service information.

43. The computer-readable medium according to Claim 41, wherein the application exhibits at least one of a constant traffic pattern, bursty traffic pattern, and a combination thereof, the transport services being predefined according to the traffic pattern of the application.

44. The computer-readable medium according to Claim 43, wherein the transport services include a constant rate service for supporting the constant rate traffic, a constant rate with burst service for supporting the combination of the constant traffic and the bursty traffic, a priority burst service for supporting the bursty traffic, and a low volume service for supporting the bursty traffic that is low in volume and requires low latency through the satellite communications network.

45. The computer-readable medium according to Claim 43, wherein the packet delivery services include rate access for establishing a constant rate communication channel, volume access for establishing a bandwidth-on-demand communication channel, and contention access for establishing a contention communication channel.

46. The computer-readable medium according to Claim 45, wherein the one transport service is the constant rate service, the one or more processors further performing the steps of:

- determining whether the received packet exceeds a predetermined committed information rate (CIR);

- selectively dropping the packet based upon the determining step; and
- utilizing the rate access packet delivery service to forward the packet.

47. The computer-readable medium according to Claim 45, wherein the one transport service is the constant rate with burst transport service, the one or more processors further performing the steps of:

- determining whether the received packet is below a predetermined committed information rate (CIR);

- utilizing the volume access packet delivery service to forward the packet upon determining that the received packet is above the CIR; and
- utilizing the rate access packet delivery service to forward the packet upon determining that the received packet is at or below the CIR.



48. The computer-readable medium according to Claim 45, wherein the one transport service is the priority burst transport service, the one or more processors further performing the step of:

utilizing the volume access packet delivery service to forward the packet.

49. The computer-readable medium according to Claim 45, wherein the one transport service is the low volume transport service, the one or more processors further performing the step of:

utilizing the contention access packet delivery service to forward the packet.

50. The computer-readable medium according to Claim 41, wherein the classifying step comprises:

specifying a default transport service for the one transport service.